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| EXAMINER | |
|---|---|
| HUYNH, SON P | |
| **ART UNIT** | **PAPER NUMBER** |
| 2611 | |

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/882,036 | PAUL ET AL. | |
| | Examiner | Art Unit | |
| | Son P. Huynh | 2611 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 June 2001 and 02 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *24-26* is/are allowed.

6)☒ Claim(s) *1-8 and 10-23* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/01/2004 and 10/30/01*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed October 30, 2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Nevertheless, the examiner has been able to obtain copies of and considered the U.S patents. However, the examiner has been unable to obtain a copy of the "A Study of the Efficiency of Layered Video Coding Using H.263" publication, and so it has not be considered. Applicant is required to provide a copy for consideration as to the merits.

### *Claim Objections*

2. Claims 8, 15 are objected to because of the following informalities:

In claim 8, the phrase "best-effort truck" (line 5) should be replaced as best-effort trunk.

In claim 15, the phrase "said buffered frame" (line 3) should be replaced as – said frame.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 7, 10-11, 13, 15-19, 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 6,275,531) in view of Tracton et al. (US 6,470,378).

Regarding claim 1, Li discloses a method of transmitting information comprising transmitted video-coded information over a network at a priority level based on transmission network information such as the bandwidth of the channel, or the destination device itself (col. 3, lines 17-58). However, Li does not specifically disclose the transmission network information is received as feedback from the network.

Tracton discloses the transmission network information (characteristic profile 68) such as client's available computing resource and network bandwidth is received as feedback from user in response to query sent by the server (col. 3, line 55-65, col. 5, lines 47-65) so that the server can encodes data and provides to client based on the feedback from network (col. 4, lines 25-49). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Li to use the teaching as

taught by Tracton in order to allow the server to tailor its output to meet the capabilities of each incoming client (col. 3, lines 1-6).

Regarding claim 2, Tracton further discloses the feedback comprises a response to a request for information on whether the network currently has availability to transmit additional high priority traffic (the characteristic profile 68 comprises a response to a query for information on whether the network is available to transmit MPEG 1 or MPEG 2 encoding of data – col. 4, lines 33-67; col. 5, lines 30-65).

Regarding claim 3, Li further discloses receiving a frame of video data to be encoded (receiving frame of video data from original video input 20 – figure 1);
encoding and transmitting the frame as a high priority video coded frame (i.e. base layer, enhancement layer 1, etc.) if permission was granted to send high priority data (i.e. possible bandwidth, or no congestion, or other physical constraints (figure 1, col. 3, lines 30-58, col. 5, line 57-col. 6, line 15). Li further discloses negotiation with the network to determine condition of network to send base layer and high priority enhancement layer (col. 5, line 48-col. 6, line 7). However, Li does not specifically disclose requesting permission and receiving response to the request to send data over network.

Tracton discloses the server sending query to send data over network and receiving characteristic profile in response to the query (col. 3, line 55-col. 4, line 14; col. 5, lines 31-65) broadly reads on requesting permission and receiving the request for permission

to send data over the network. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Li to use the teaching as taught by Tracton in order to allow the server to tailor its output to meet the capabilities of each incoming client (col. 3, lines 1-6).

Regarding claim 4, Li further discloses encoding and transmitting the frame as a low priority frame if permission was not granted to send high priority data (i.e. encoding the frame as enhancement layer N, which can be dropped if there is no bandwidth available – col. 3, lines 16-27; col. 5, lines 40-67).

Regarding claim 5, Li further discloses deleting (dropping/omitting) the video coded frame from transmission if permission was not granted to send high priority data (col. 3, lines 16-27, col. 5, lines 40-67).

Regarding claim 7, Li further discloses encoding as high priority frames all video frames that are to be transmitted (encoding original video as frames of N bitstream layers that are to be transmitted – figure 1);
for each of coded frames:
determining permission to send high priority data (determining condition of transmission channel to send the frame – col. 5, line 40-col. 6, line 7);
transmitting the frame as a high priority frame if permission to transmit high priority data was granted (e.g., transmitting the frame if predetermined bandwidth of transmission channel is available – col. 5, line 40-col. 6, line 7); and

transmitting the fame as a low priority frame if permission to transmit high priority data was not granted (for example, transmitting frames in N-M bitstream layers as low priority (the bitstream layer can be dropped/omitted) if there is not enough available bandwidth – col. 3, lines 17-42; col. 5, line 47-col. 6, line 7). However, Li does not specifically disclose requesting permission to send data.

Tracton discloses requesting permission to send data (the server send query to client to determine the bandwidth and other constraints of transmission network -col. 3, line 55-col. 4, line 14; col. 5, lines 31-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Li to use the teaching as taught by Tracton in order to allow the server to tailor its output to meet the capabilities of each incoming client (col. 3, lines 1-6).

Regarding claim 10, the limitations of the method as claimed correspond to the limitations as claimed in claim 3, wherein base layer as claimed correspond to the high priority video-coded frame, and are analyzed as discussed with respect to the rejection of claim 3.

Regarding claims 11, 13 and 15 the additional limitations as claimed correspond to the additional limitations as claimed in claims 4, 5, 7, wherein the video-coded enhancement layer frame corresponds to the low priority frame, are analyzed as discussed with respect to the rejection of claims 4, 5 and 7.

Regarding claim 16, Li discloses a method of transmitting video-coded information over a network (figure 1), comprising:

determining that a candidate based layer frame is available to be encoded (negotiation with the network and intermediated devices to determine the number N of bitstream layer to be generated- figure 1, col. 5, lines 47-65). Li also discloses determining permission (network condition – col. 5, lines 47-67) from the network to send high priority data. However, Li does not specifically disclose requesting permission from the network to send data before encoding the frame.

Tracton discloses the server sending query to send data over network before encoding the data (col. 3, line 55-col. 4, line 14; col. 5, lines 31-65; col. 7, lines 35-53) broadly reads on requesting permission from the network to send data before encoding the data. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Li to use the teaching as taught by Tracton in order to allow the server to tailor its output to meet the capabilities of each incoming client (col. 3, lines 1-6).

Regarding claims 17-19, the limitations as claimed correspond to the limitations as claimed in claims 3-5, and are analyzed as discussed in the rejection of claims 3-5.

Regarding claim 22, the limitations as claimed correspond to the limitations as claimed in claims 3-4, and are analyzed as discussed with respect to the rejection of claims 3 and 4.

Regarding claim 23, Tracton further discloses requesting permission from the network and coding the video frame are done at substantially the same time (e.g. by on the fly scaling so that the server is not necessary to precompute different data stream – col. 7, lines 35-52).

5. Claims 6, 14, 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 6,275,531) in view of Tracton et al. (US 6,470,378) as applied to claim 1 above, and further in view of Tillman et al. (US 6,496,980).

Regarding claim 6, Li in view of Tracton discloses a method as discussed in the rejection of claim 1. Li further discloses requesting permission to send high priority data (negotiation with the network to send base layer and high priority enhancement layer – col. 5, lines 47-67);

encoding a high priority video frame at substantially the same time as the requesting permission to transmit high priority data (encoding a video layer substantially the same time as the negotiation with the network and intermediated device to determine the number of N of bitstreams layer to be generated and layers to be transmitted – col. 5, lines 47-67); and

transmitting the frame as a high priority video coded frame (i.e. base layer, enhancement layer 1, etc.) if permission was granted to send high priority data (i.e. possible bandwidth, or no congestion, or other physical constraints (figure 1, col. 3, lines 30-58, col. 5, line 57-col. 6, line 15); and

deleting (dropping/omitting) the video coded frame from transmission if permission was not granted to send high priority data (col. 3, lines 16-27, col. 5, lines 40-67). However, neither Li nor Tracton specifically disclose buffering the video frame.

Tillman disclose buffering video frame in server cache 38 (figure 2, col. 5, lines 23-25; col. 9, lines 61-67) and deleting the encoded video frame from transmission if permission to send high priority data was not granted (e.g. available bandwidth is not enough – col. 5, lines 55-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Li and Tracton to use the teaching of using a buffer as taught by Tillman in order to stores the video frames for future use (col. 9, lines 61-64).

Regarding claim 14, the limitations as claimed correspond to the limitations as claimed in claim 6, and are analyzed as discussed with respect to the rejection of claim 6.

Regarding claim 20, the limitations as claimed correspond to the combination of limitations as claimed in claims 3-6, and are analyzed as discussed with respect to the rejection of claims 3-6.

Regarding claim 21, Li in view of Tracton and Tillman teaches a method as discussed in the rejection of claim 20. Li further discloses base layer bitstream is guaranteed (col. 5, line 47-55) and dropping frame of enhancement layer if condition of the transmission network such as bandwidth is not enough for transmitting enhancement layer (col. 5, lines 47-67). However, Li specifically discloses high priority frames are transmitted over the network separately than the low priority frames. Official Notice is taken that transmitting high priority frame over a network separately than the low priority frame is well known in the art. For example, transmitting base layer over a network separately than enhancement layer frame. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Li and Tracton and Tillman to use the well-known teaching in the art in order to avoid the lost of frame for base layer if the packet loss or error occurs in the low priority frame (enhancement layer) – see col. 3, lines 33-43).

6. Claims 8, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 6,275,531) in view of Tracton et al. (US 6,470,378) as applied to claim 7 above, and further in view of Zhang et al. (US 6,816,194).

Regarding claim 8, Li in view of Tracton teaches a method as discussed in the rejection of claim 7. Li further discloses base layer bitstream is guaranteed (col. 5, line 47-55). However, neither Li nor Tracton specifically discloses high priority frames are transmitted over the network separately than the low priority frames, wherein the high priority frames are transmitted over the network using a guaranteed quality of service

trunk, and wherein the low priority frames are transmitted over the network on a best effort truck.

Zhang discloses high priority frames (e.g. base layers) are transmitted over the network separately than the low priority frames (col. 3, lines 37-43; col. 7, line 57-col. 8, line 6), wherein the high priority frames are transmitted over the network using a guaranteed quality of service trunk (e.g. well controlled channel – col. 3, lines 1-12; col. 7, lines 56-63), and wherein the low priority frames are transmitted over the network on a best effort truck (bitstream where the layer can be dropped – col. 3, lines 27-53; col. 10, lines 1-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Li and Tracton to use the teaching as taught by Zhang in order to avoid the lost of frame for base layer if the packet loss or error occurs in the low priority frame (enhancement layer) – see col. 3, lines 33-43).

Regarding claim 12, the limitations as claimed correspond to the limitations as claimed in claim 8, and are analyzed as discussed with respect to the rejection of claim 8.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Horne et al. (US 5,515,377).

Regarding claim 1, Horn discloses a method for transmitting information comprising transmitting video coded information over a network at priority level that is determined based on feedback (loss data) from the network (figure 1, col. 1, lines 62-67; col. 2, lines 38-61).

***Allowable Subject Matter***

9. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to disclose or fairly suggest a method of transmitting video-encoded information from an encoder over a network as variously claimed, particularly having the feature of encoding a plurality of frames as either high priority frames or low priority frames according to a priority selection algorithm and receiving information about loss of low priority frames by the network and if more than a threshold amount of low priority frames are being lost, encoding an additional number of the frames as high priority frames than is dictated by the algorithm, wherein the additional

high priority frames are encoded at a lower quality than is generally used for high priority frames.

11. Claims 24-26 are allowed.

The reasons for allowance of claims 24-26 because claim 24 incorporates the allowance subject matter as indicated in claim 9 above.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Piotrowski (US 6,496,217) discloses video communication system using model based coding and prioritization techniques.

Van der Schaar et al. (US 6,501,797) discloses system and method for improved fine granular scalable video using based layer coding information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son P. Huynh whose telephone number is 571-272-7295. The examiner can normally be reached on 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher C. Grant can be reached on 571-272-7294. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SPH
September 26, 2005

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